

FIG. 1

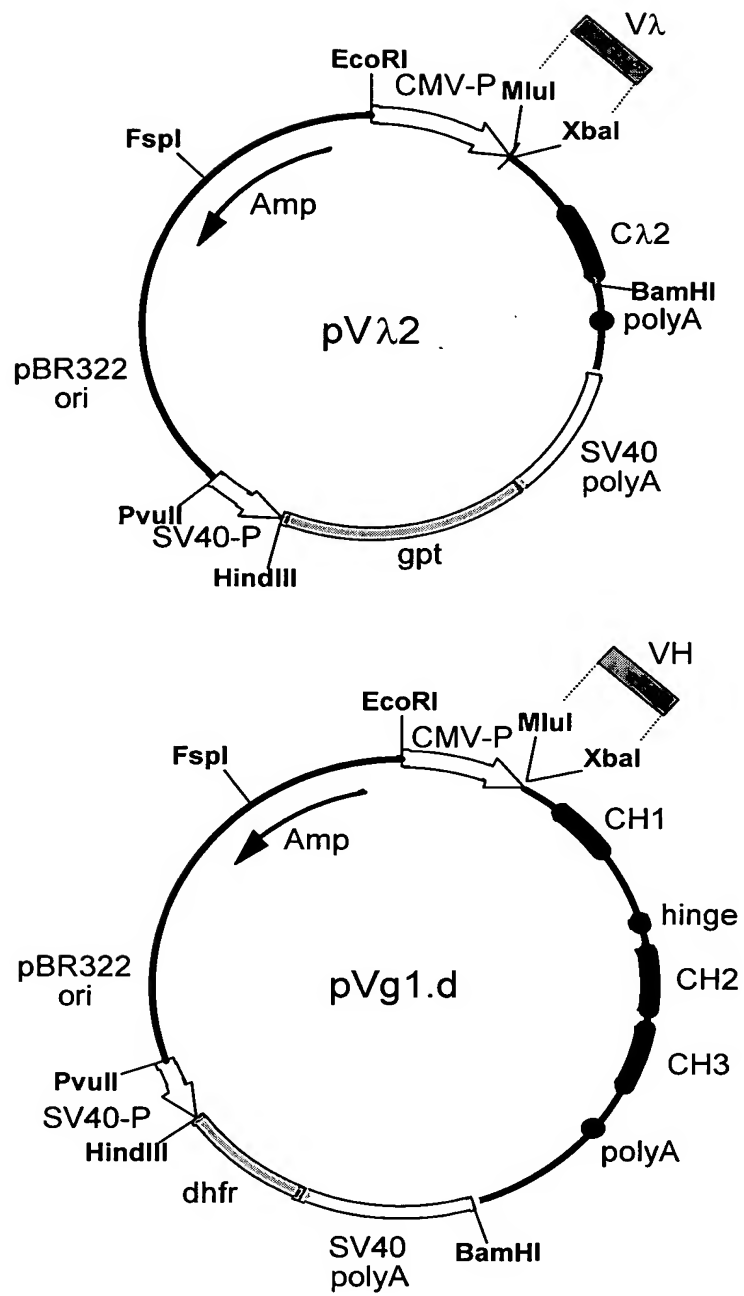


FIG. 2

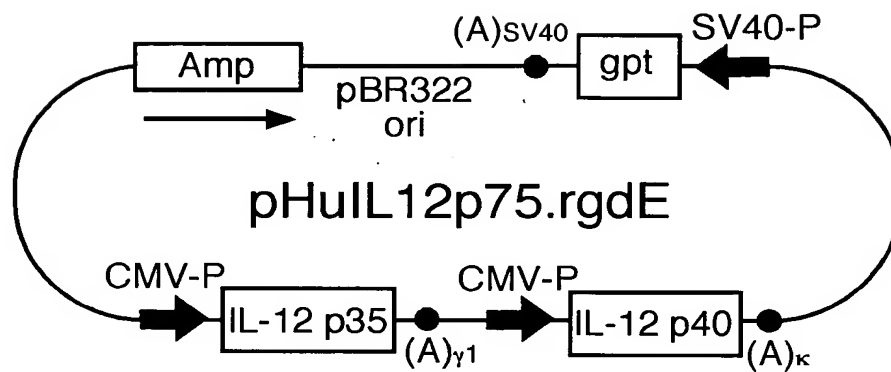


FIG. 3

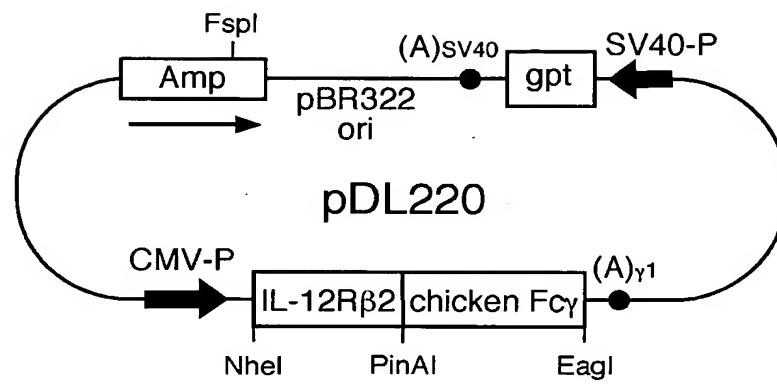


FIG. 4

(A) VL sequences

```

1 2 3 4
123456789 0123456789 01234567890 1234567899 0123456789
A
Chimeric B1 **ALTQPAS *VSANLGGTV KITCSGGYSG* *YYG WYQOKS PGSAPVTVIY
Humanized B1 SSELTPPPS *VSVALGQTV RITCSGGYSG* *YYGWYQOK* PGQAPVT VIY
DPL16 SSELTDPA *VSVALGQTV RITC----- ----WYQOK* PGQAPVLVIY

5 6 7 8 9
0123456789 0123456789 0123456789 0123456789 01234556789
A
Chimeric B1 DNTRRPSDIP SRFSGSKSGS TATLTITGVQ ADDEAVYFCG TWDSSRVGI FG
Humanized B1 DNTRRPSDIP SRFSGSKSGS TATLTITGVQ AEDEADYYCG TWDSSRVGIFG
DPL16 -----GIP DRFSGSSSGN TASLTITGAQ AEDEADYYC- -----FG

1
0
01234567
Chimeric B1 AGTTLTVL
Humanized B1 GGTKLTVL
DPL16/Jλ2 GGTKLTVL
```

(B) VH sequences

```

1 2 3 4
123456789 0123456789 0123456789 0123456789 0123456789
Chimeric B1 AVTLDESGG GLQTPGGALS LVCKASGFTF SSYSML WVRQ APGKGLEYVA
Humanized B1 EVQLVESGG GLVQPGGSLR LSCAASGFTF SSYSMLWVRQ APGKGLEY VA
DP-54 EVQLVESGG GLVQPGGSLR LSCAASGFTF S-----WVRQ APGKGLEWVA

5 6 7 8 9
01223456789 0123456789 0123456789 0122223456789
0123456789
A ABC
Chimeric B1 EITNTGRTRY GAAVKG RATI SRDNGQSTVR LQLNNLRAEDTGT
YYCARSSVYS
Humanized B1 EITNTGRTRY GAAVKGRA TI SRDNAKNTVY LQMNSLRAEDTAV
YYCARSSVYS
DP-54 ----- RFTI SRDNAKNSLY LQMNSLRAEDTAV YYCAR--
---

1 1
0 1
0000000000123456789 0123
ABCDEFghi
Chimeric B1 CSYGWCAGNINAWGHGTEV IVSS
Humanized B1 CSYGWCAGNINAWGQGLV TVSS
JH1 -----WGQGLV TVSS
```

FIG. 5

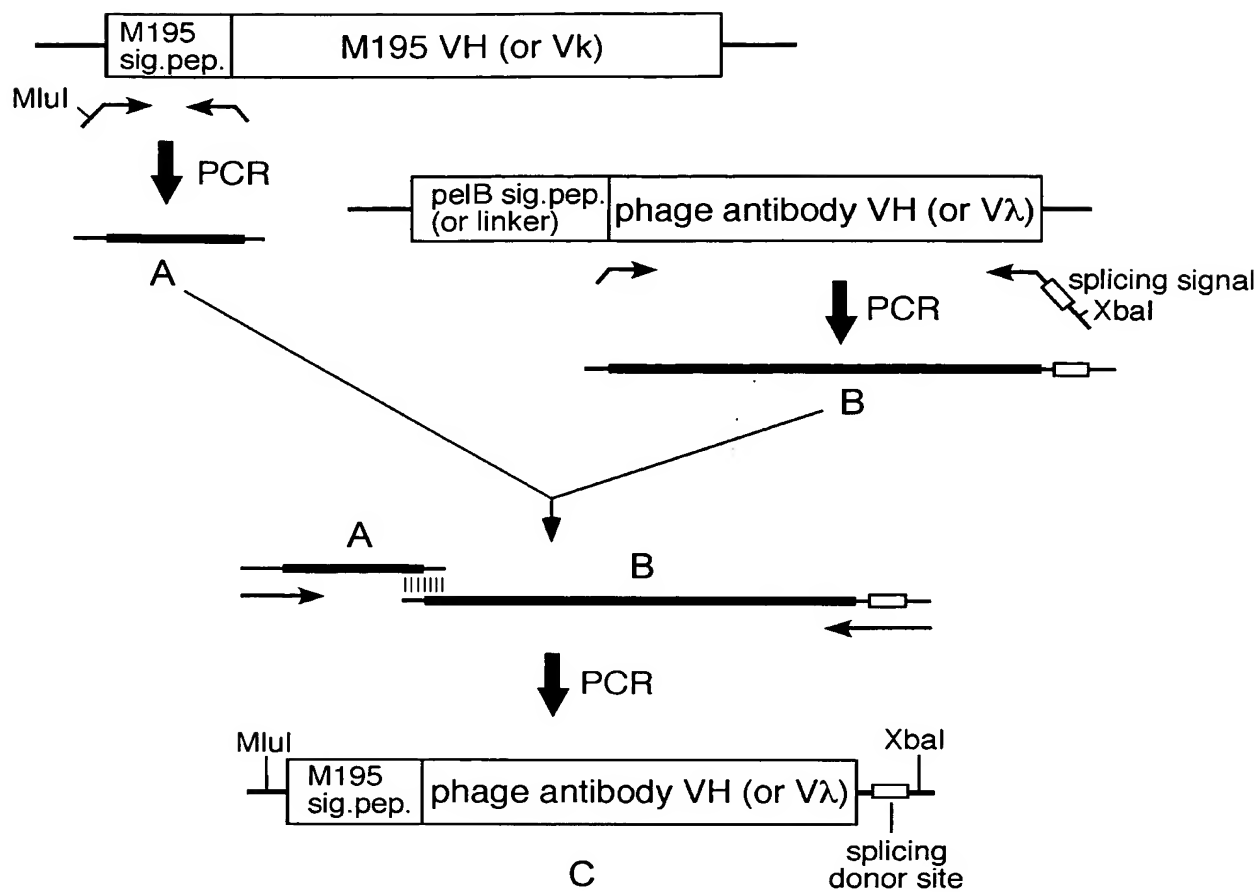


FIG. 6

(A) B1 V λ mini exon

```

                                30                                60
ACGCGTCTCGACCACCATGGAGAAAGACACACTCCTGCTATGGGTCCTACTTCTCTGGGT
      M E K D T L L L W V L L L W V

                                90                                120
TCCAGGTTCCACAGGTGCGCTGACTCAGCCGGCCTCAGTGTCTCAGCAAACCTGGGAGGAAC
      P G S T G A L T Q P A S V S A N L G G T

                                150                                180
CGTCAAGATCACCTGCTCCGGGGGTACAGCGGCTATTATGGCTGGTACCAGCAGAAATC
      V K I T C S G G Y S G Y Y G W Y Q Q K S

                                180                                210
ACCTGGCAGTGCCCCTGTCACTGTGATCTATGACAACACCAGGAGACCCTCGGACATCCC
      P G S A P V T V I Y D N T R R P S D I P

                                240                                270
TTCACGATTCTCCGGTTCCAAATCCGGCTCCACAGCCACATTAACCATCACTGGGGTCCA
      S R F S G S K S G S T A T L T I T G V Q

                                300                                330
AGCCGACGACGAGGCTGTCTATTTCTGTGGGACCTGGGACAGCAGCCGTGTTGGTATATT
      A D D E A V Y F C G T W D S S R V G I F

                                360                                382
TGGGGCCGGGACAACCCTGACCGTCCTAAGTAAGTAGAATCCAAAGTCTAGA
      G A G T T L T V L

```

FIG. 7A

(B) B1 VH mini exon

```

                                30                                60
ACGCGTCTCGACCACCATGGGATGGAGCTGGATCTTTCTCTTCCTCCTGTCAGGAAGTGC
      M G W S W I F L F L L S G T A

                                90                                120
TGGCGTCCACTCTGCCGTGACGTTGGACGAGTCTGGGGGCGGCCTCCAGACGCCCGGAGG
      G V H S A V T L D E S G G G L Q T P G G

                                150                                180
AGCGCTCAGCCTCGTCTGCAAGGCCTCCGGGTTTCACCTTCAGTAGTTACAGCATGCTCTG
      A L S L V C K A S G F T F S S Y S M L W

                                210                                240
GGTGCGACAGGCGCCCGGCAAGGGGCTGGAATACGTCGCTGAAATTACCAACACTGGTAG
      V R Q A P G K G L E Y V A E I T N T G R

                                270                                300
GACCAGAAGATACGGGGCGGCGGTGAAGGGCCGTGCCACCATCTCGAGGGACAACGGGCA
T R R Y G A A V K G R A T I S R D N G Q

                                360                                390
GAGCACAGTGAGGCTGCAGCTGAACAACCTCAGGGCTGAGGACACCGGCACCTACTACTG
      S T V R L Q L N N L R A E D T G T Y Y C

                                420                                450
CGCCAGAAGTAGTGTTTATTCTTGTTCTTATGGTTGGTGTGCTGGTAACATCAACGCATG
      A R S S V Y S C S Y G W C A G N I N A W

                                480                                500
GGGCCACGGGACCGAAGTCATCGTCTCCTCCGGTAAGAATGGCGTCTAGA
      G H G T E V I V S S

```

FIG. 7B

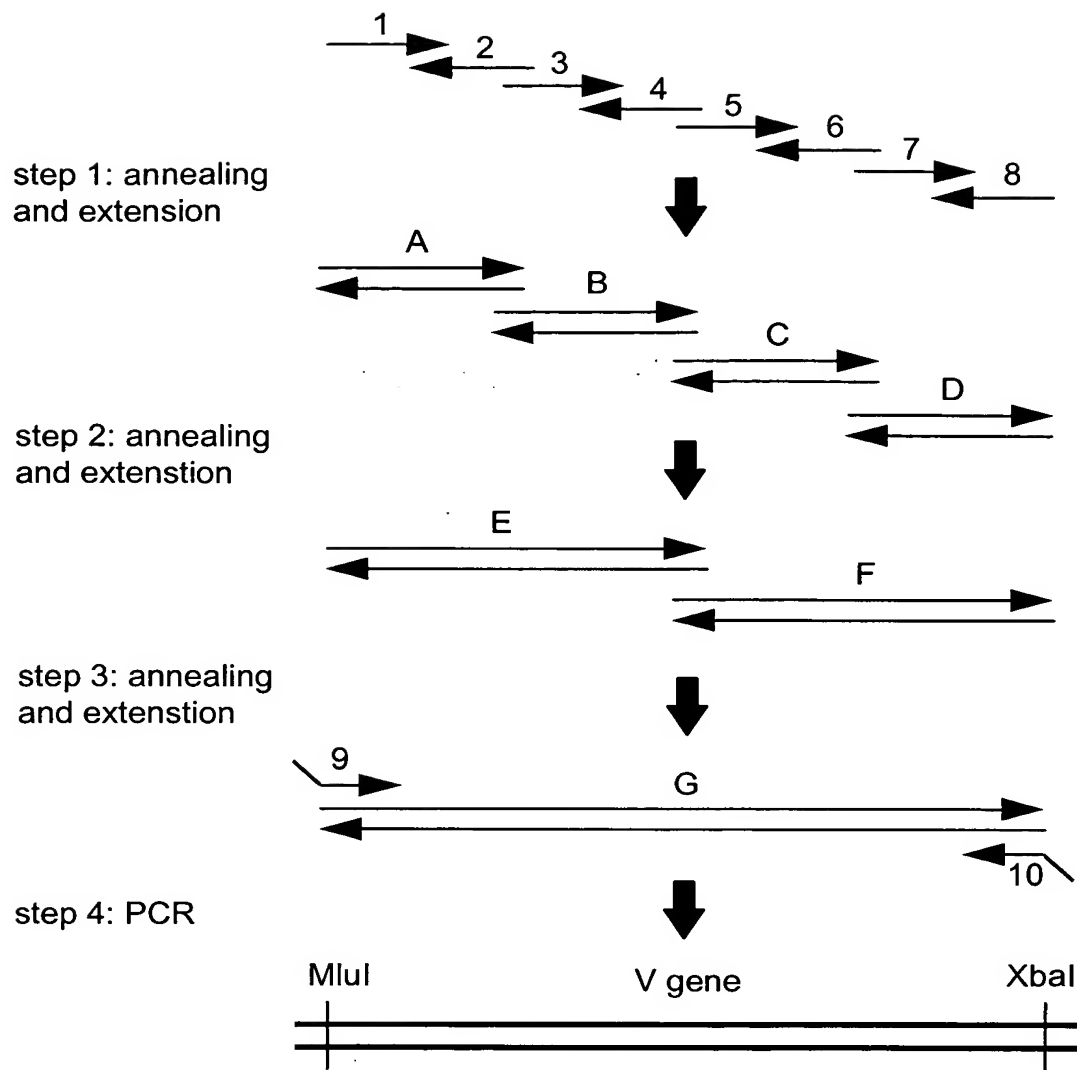


FIG. 8

(A) For HuB1 Vλ

Primer 1:

5'-CTAGCCACGCGTCCACCATGGAGAAAGACACACTCCTGCTATGGGTCCTACTTCTCTGGGTTCCAGGTTC-3'

Primer 2:

5'-CCAGGGCCACTGACACTGAAGGCGGCTGAGTCAGCTCAGAGCTACCTGTGGAACCTGGAACCCAGAGAAG-3'

Primer 3:

5'-CTTCAGTGTTCAGTGGCCCTGGGACAGACCGTCAGGATCACCTGCTCCGAGGTTACAGCGGCTATTATGGC-3'

Primer 4:

5'-GTTGTCATAAATCACAGTGACAGGAGCCTGGCCAGGTTTCTGCTGGTACCAGCCATAATAGCCGCTGTAAC-3'

Primer 5:

5'-CCTGTCACTGTGATTATGACAACACCAGGAGACCTCGGACATCCCTTCAGATTCTCCGGTTCCAAATCCG-3'

Primer 6:

5'-CCTCGTCTCGGCTTGGACTCCAGTGATGGTTAATGTGGCTGTGGAGCCGATTGGAACCGGAGAATC-3'

Primer 7:

5'-GAGTCCAAGCCGAGGACGAGGCTGACTATTACTGTGGGACCTGGGACAGCAGCCGTGTTGGTATATTTGGAGG-3'

Primer 8:

5'-GACTCGTCTAGAGGGAGAAGAGACTCACCTAGGACGGTCAGCTTTGTCCACCTCCAAATATACCAACACGGC-3'

Primer 9:

5'-CTAGCCACGCGTCCACCATG-3'

Primer 10:

5'-GACTCGTCTAGAGGGAGAAG-3'

(B) For HuB1 VH

Primer 1:

5'-CTAGCCACGCGTCCACCATGGGATGGAGCTGGATCTTTCTCTCTCTCTCTGTCAGGAAGTCTGGCGTCCACTCTCAGG-3'

Primer 2:

5'-GAGCCTGAGGCTTCTCTCAGGCTGCACGAGTCCACCTCCGAGCTCCACCAACTGCACCTGAGAGTGGACGCCAGCAG-3'

Primer 3:

5'-CCTGGAGGAAGCCTCAGGCTCAGCTGCGCCGCCTCCGGGTTCACTTCAGTAGTTACAGCATGCTCTGGGTGCGACAGG-3'

Primer 4:

5'-CTTCTGGTCTTACCAGTGTGGTAATTTACGCGACGTATTCCAGTCCCTTGCCAGGCGCCTGTGCGACCCAGAGCATG-3'

Primer 5:

5'-CCAACACTGGTAGGACCAGAAGATACGGAGCTGCGGTGAAGGGCCGTGCCACCATCTCTAGGGACAACGCCAAGAACAC-3'

Primer 6:

5'-GGCGCAGTAGTACACGGCGGTGTCTCAGCCCTGAGGCTGTTTCATGTCAGGTACACTGTGTTCTTGGCGTTGTCCCTA-3'

Primer 7:

5'-CCGCCGTGTACTACTGCGCCAGAAGTAGTGTATTTCTTCTTATGGTTGGTGTGCTGGTAACATCAACGCATGG-3'

Primer 8:

5'-GACTCGTCTAGAGGTGTGAGGACTACCGGAGGAGACGGTGACCAGGGTTCCTGGCCCCATGCGTTGATGTTACCAG-3'

Primer 9:

5'-CTAGCCACGCGTCCACCATG-3'

Primer 10:

5'-GACTCGTCTAGAGGTTGTGAG-3'

FIG. 9

(A) Vλ mini-exon of humanized B1

60
ACGCGTCCACCATGGAGAAAGACACACTCCTGCTATGGGTCCTACTTCTCTGGGTTCAG
M E K D T L L L W V L L L W V P

120
GTTCCACAGGTAGCTCTGAGCTGACTCAGCCGCCTTCAGTGTCTAGTGGCCCTGGGACAGA
G S T G S S E L T Q P P S V S V A L G Q

180
CCGTCAGGATCACCTGCTCCGGAGGTTACAGCGGCTATTATGGCTGGTACCAGCAGAAAC
T V R I T C S G G Y S G Y Y G W Y Q Q K

240
CTGGCCAGGCTCCTGTCACTGTGATTTATGACAACACCAGGAGACCCCTCGGACATCCCTT
P G Q A P V T V I Y D N T R R P S D I P

300
CACGATTCTCCGGTTCCAAATCCGGCTCCACAGCCACATTAACCATCACTGGAGTCCAAG
S R F S G S K S G S T A T L T I T G V Q

360
CCGAGGACGAGGCTGACTATTACTGTGGGACCTGGGACAGCAGCCGTGTTGGTATATTTG
A E D E A D Y Y C G T W D S S R V G I F

409
GAGGTGGGACAAAGCTGACCGTCCTAGGTGAGTCTCTTCTCCCTCTAGA
G G G T K L T V L

FIG. 10A

(B) VH mini-exon of humanized B1

60
ACGCGTCCACCATGGGATGGAGCTGGATCTTTCTCTTCCTCCTGTCAGGAACTGCTGGCG
M G W S W I F L F L L S G T A G

120
TCCACTCTGAGGTGCAGTTGGTGGAGTCCGGAGGTGGACTCGTGCAGCCTGGAGGAAGCC
V H S E V Q L V E S G G G L V Q P G G S

180
TCAGGCTCAGCTGCGCCGCTCCGGGTTCACCTTCAGTAGTTACAGCATGCTCTGGGTGC
L R L S C A A S G F T F S S Y S M L W V

240
GACAGGCGCCTGGCAAGGGACTGGAATACGTCGCTGAAATTACCAACACTGGTAGGACCA
R Q A P G K G L E Y V A E I T N T G R T

300
GAAGATACGGAGCTGCGGTGAAGGGCCGTGCCACCATCTCGAGGGACAACGCCAAGAACA
R R Y G A A V K G R A T I S R D N A K N

360
CAGTGTACCTGCAGATGAACAGCCTCAGGGCTGAGGACACCGCCGTGTACTACTGCGCCA
T V Y L Q M N S L R A E D T A V Y Y C A

420
GAAGTAGTGTATTATTCTTGTCTTATGGTTGGTGTGCTGGTAACATCAACGCATGGGGCC
R S S V Y S C S Y G W C A G N I N A W G

469
AGGGAACCCTGGTCACCGTCTCCTCCGGTGAGTCCTCACAACCTCTAGA
Q G T L V T V S S

FIG. 10B

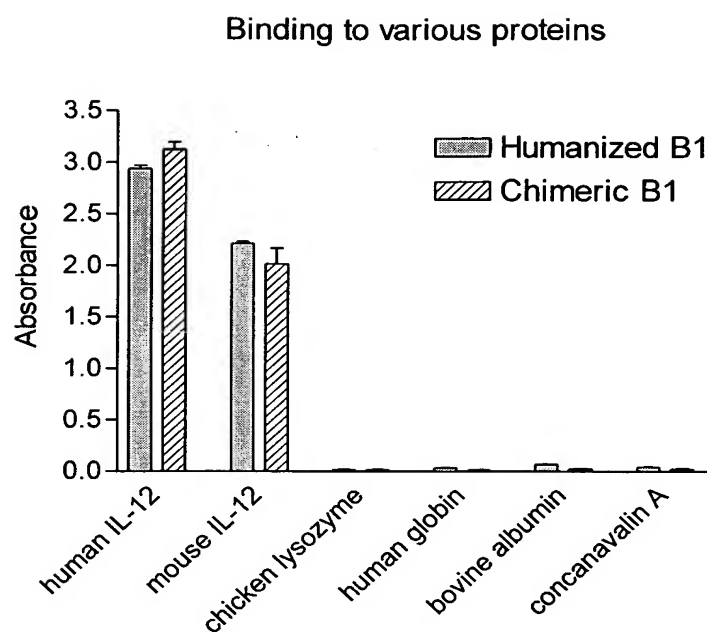
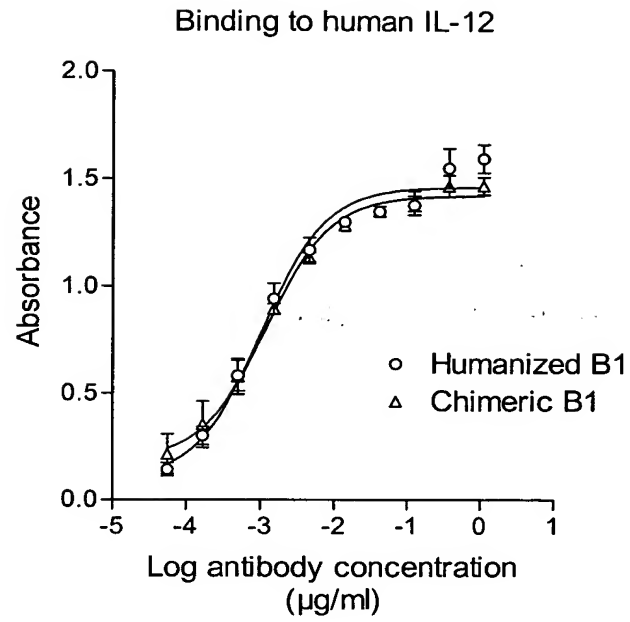


FIG. 11

(A)



(B)

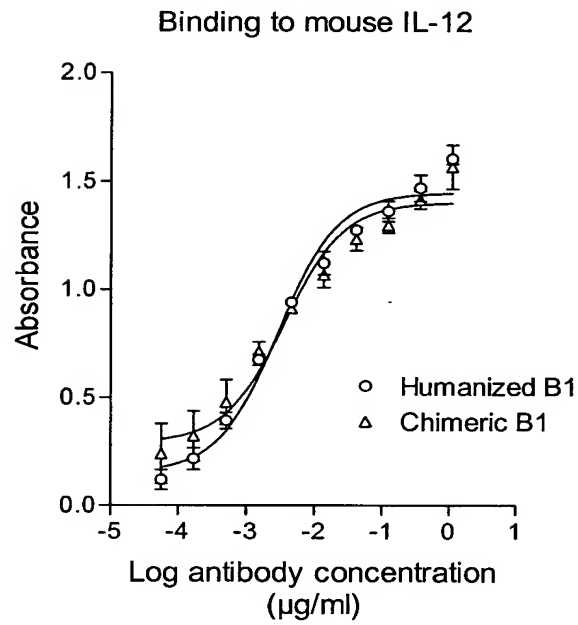
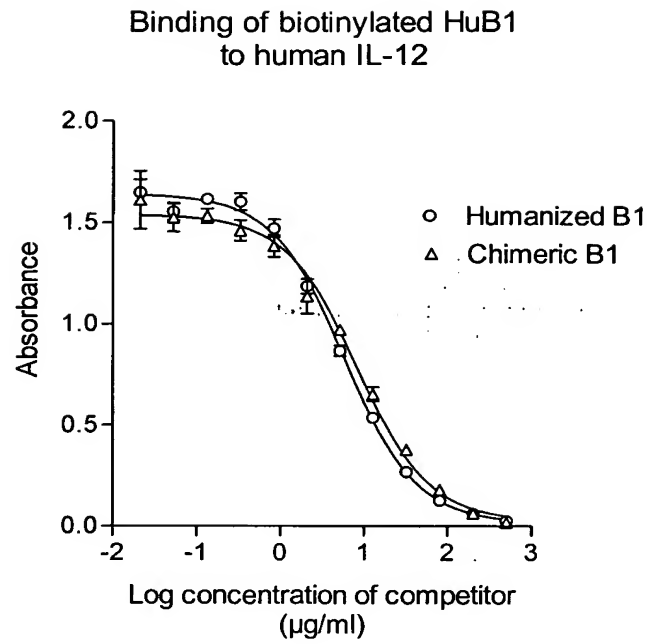


FIG. 12

(A)



(B)

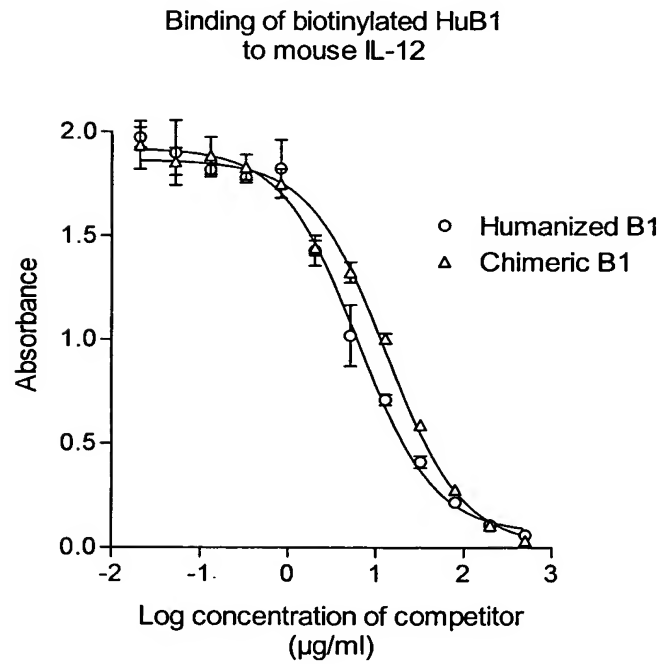


FIG. 13

[DD2 Vλ mini-exon]

60
ACGCGTCTCGACCACCATGGAGAAAAGACACACTCCTGCTATGGGTCCTACTTCTCTGGGT
M E K D T L L L W V L L L W V

120
TCCAGGTTCCACAGGTGCGCTGACTCAGCCGGCCTCAGTGTGAGCAAACCCGGGAGAAAAC
P G S T G A L T Q P A S V S A N P G E T

180
CGTCAAGATCACCTGCCCCGGGGGTGGCATCTATGCTGGAAGGTACTATGGTTATGGCTG
V K I T C P G G G I Y A G R Y Y G Y G W

240
GTTCCAGCAGAAGTCTCCTGGCAGTGCCCCCTGTCACTGTGATCTATAGCAACGACAAGAG
F Q Q K S P G S A P V T V I Y S N D K R

300
ACCCTCGGACATCCCTTCACGATTCTCCGGCTCCGCATCCGGCTCCACAGCCACATTAAC
P S D I P S R F S G S A S G S T A T L T

360
CATCACTGGGGTCCAAGCCGACGACGAGGCTGTCTATTTCTGTGGGAGCCACGACAGCAA
I T G V Q A D D E A V Y F C G S H D S N

423
TGTTGGTGTATTTGGGGCCGGGACAACCCTGACCGTCCTAAGTAAGTAGAATCCAAATCTAGA
V G V F G A G T T L T V L

Fig. 14A

[DD2 VH mini exon]

60
ACGCGTCTCGACCACCATGGGATGGAGCTGGATCTTTCTCTTCCTCCTGTCAGGAACTGC
M G W S W I F L F L L S G T A

120
TGGCGTCCACTCTGCCGTGACGTTGGACGAGTCCGGGGGCGGCCTCCAGACGCCCCGAGG
G V H S A V T L D E S G G G L Q T P G G

180
AGGGCTCAGCCTCGTCTGCAAGGCCTCCGGGTTGACTTCAGCAACTATCAGTTGCAGTG
G L S L V C K A S G F D F S N Y Q L Q W

240
GGTGCGCCAGGCGCCCCGGCAAGGGGCTGGAGTGGGTCGGTGGTATTGGCAGCAGTGGCAG
V R Q A P G K G L E W V G G I G S S G S

300
TAGCACATACTACGGGGCGGCGGTGAAGGGCCGTGCCACCATCTCGAGGGACAACGGGCA
S T Y Y G A A V K G R A T I S R D N G Q

360
GAGCACAGTGAGACTGCAGCTGAACAACCTCAGGGCTGAGGACACCGGCACCTACTACTG
S T V R L Q L N N L R A E D T G T Y Y C

420
CACCAGAGGTGTTAGTCCTTACAGCTGTTGGTATGCCGGCCGTACTAGTTATACTTGTC
T R G V S P Y S C W Y A G R T S Y T C H

480
TGCATATACTGCTGGTAGCATCGACGCATGGGGCCACGGGACCGAAGTCATCGTCTCCTC
A Y T A G S I D A W G H G T E V I V S S

500
CGGTAAGAATGGCGTCTAGA

Fig. 14B

(A) Vλ

	1	2	3	4
	123456789	0123456789	0123456777789	01234567899 0123456789
		ABC		A
DD2	**ALTQPAS	*VSANPGETV	KITCPGGGIYAGR	YYGYG WFQOKS PGSAPVTVIY
HuDD2	SSELTQDPA	*VSVALGQTV	RITCPGGGIYAGR	YYGYGWF_QQK* PGQAPVTVIY
DPL16	SSELTQDPA	*VSVALGQTV	RITC-----	-----WYQQK* PGQAPVLVIY

	5	6	7	8	9
	0123456789	0123456789	0123456789	0123456789	0123456789
DD2	<u>SNDKRPSDIP</u>	SRFSGSASGS	TATLTITGVQ	ADDEAVYFCG	SHDSNVGV FG
HuDD2	<u>SNDKRPSDIP</u>	<u>SRFSGSASGS</u>	TASLTITGAQ	AEDEADYYCG	SHDSNVGVFG
DPL16/Jλ2	-----GIP	DRFSGSSSGN	TASLTITGAQ	AEDEADYYC-	-----FG

	1
	0
	01234567
DD2	AGTTLTVL
HuDD2	GGTKLTVL
Jλ2	GGTKLTVL

(B) VH

	1	2	3	4
	123456789	0123456789	0123456789	01234567899 0123456789
DD2	AVTLDESGG	GLQTPGGGLS	LVCKASGFD	SNYQLQ WVRQA PGKGLEWVGG
HuDD2	EVQLVESGG	GLVQPGGSLR	LSCAASGFD F	SNYQLQWVRQA PGKGLEWVG G
DP-54	EVQLVESGG	GLVQPGGSLR	LSCAASGFTF	S-----WVRQA PGKGLEWVA-

	5	6	7	8	9
	0123456789	0123456789	0123456789	0122223456789	0123456789
				ABC	
DD2	<u>IGSSGSSTYY</u>	GAAVKG RATI	SRDNGQSTVR	LQLNNLRAEDTGT	YYCTRGVSPY
HuDD2	<u>IGSSGSSTYY</u>	GAAVKGRA TI	SRDNAKNSVY	LQMNSLRAEDTAV	YYCT_RGVSPY
DP-54	-----	-----RFTI	SRDNAKNSLY	LQMNSLRAEDTAV	YYCAR-----

	1	
	0	
	00000000000123456789 01234567890123	
	ABCDEFGHI	
DD2	<u>SCWYAGRTSYTCHAYTAGS</u>	IDA WGHGTEVIVSS
HuDD2	<u>SCWYAGRTSYTCHAYTAGS</u>	IDAWQGTLVTVSS
JH1	-----	---WGQGLTVTVSS

Fig. 15

(A) For HuDD2 Vλ

Primer 1

5'-ACGCGTCCACCATGGAGAAAGACACACTCCTGCTGTGGGTCTACTTCTCTGGGTTCCAGGTTCCACAGGTTTC-3'

Primer 2

5'-CCTGACTGTCTGTCCCAAGGCCACAGACACAGCAGGGTCTGAGTCAGCTCAGAAGAACCTGTGGAACCTGGAAC-3'

Primer 3

5'-CCTTGGGACAGACAGTCAGGATCACATGCCCCGGAGGTGGCATCTATGCTGGACGCTACTATGGTTATGGCTG-3'

Primer 4

5'-CGTTGCTATAGATGACAGTTACAGGGGCTGTCTGGCTTCTGCTGGAACCAGCCATAACCATAGTAGCG-3'

Primer 5

5'-CTGTAACTGTCTATCTATAGCAACGACAAGAGACCCTCGGACATCCCTTCAGGATTCTCTGGCTCCGCATC-3'

Primer 6

5'-CATCTTCCGCCTGAGCCCCAGTGATGGTCAAGGAAGCTGTGGAGCCTGATGCGGAGCCAGAGAATCGTG-3'

Primer 7

5'-GGCTCAGGCGGAAGATGAGGCTGACTATTACTGTGGGAGCCACGACAGCAATGTTGGTGTATTTGG-3'

Primer 8

5'-TCTAGAGGGAGAAGAGACTCACCTAGGACGGTCAGCTTTGTCCACCGCCAAATACACCAACATTGCTGTTC-3'

Primer 9

5'-CTACGAACGCGTCCACCATGGAGAAAG-3'

Primer 10

5'-GACTTCTCTAGAGGGAGAAGAGACTCACC-3'

(B) For HuDD2 VH

Primer 1

5'-ACGCGTCCACCATGGGATGGAGCTGGATCTTTCTCTTCTCCTGTTCAGGAAGCTGCTGGCGTGCACTCTGAGGTGCAGCTG-3'

Primer 2

5'-GGCTGCACAGGAGAGTCTCAGGGACCCCCAGGCTGGACCAAGCCTCCCCCAGACTCCACCAGCTGCACCTCAGAGTGCA-3'

Primer 3

5'-TGAGACTCTCCTGTGCAGCCTCTGGATTTCGACTTTAGTAAGTATCAGTTGCAGTGGGTCCGCCAGGCTCCAGGGAAGGGG-3'

Primer 4

5'-AACCGCAGCTCCGTAGTATGTGCTACTGCCACTGTGCCAATACCAACCCACCCACTCCAGCCCCCTCCCTGGAGCCTGGC-3'

Primer 5

5'-CATACTACGGAGCTGCGGTTAAGGGCCGAGCCACCATCTCCAGAGACAACGCCAAGAACTCAGTGTATCTGCAAATGAAC-3'

Primer 6

5'-CTGTAAGGACTAACACCTCTGGTACAGTAATACACAGCCGTGTCTCGGCTCTCAGGCTGTTCAATTGCAGATACACTGA-3'

Primer 7

5'-AGAGGTGTTAGTCCTTACAGCTGTTGGTATGCCGGCCGTACTAGTTATACTTGTTCATGCATATACTGCTGGTAGCATCGA-3'

Primer 8

5'-TCTAGAAGTACAGCAGACTCACCTGAGGAGACGGTGACCAGGGTTCCTTGCCCCATGCGTCGATGCTACCAGCAGTATA-3'

Primer 9

5'-CTACGAACGCGTCCACCATGGGATGG-3'

Primer 10

5'-GACTTCTCTAGAAGTACAGCAGACTCAC-3'

Fig. 16

[HuDD2 Vλ mini exon]

60
ACGCGTCCACCATGGAGAAAGACACACTCCTGCTGTGGGTCCTACTTCTCTGGGTTCCAG
M E K D T L L L W V L L L W V P

120
GTTCCACAGGTTCTTCTGAGCTGACTCAGGACCCTGCTGTGTCTGTGGCCTTGGGACAGA
G S T G S S E L T Q D P A V S V A L G Q

180
CAGTCAGGATCACATGCCCCGGAGGTGGCATCTATGCTGGACGCTACTATGGTTATGGCT
T V R I T C P G G G I Y A G R Y Y G Y G

240
GGTTCCAGCAGAAGCCAGGACAGGCCCTGTAACTGTCATCTATAGCAACGACAAGAGAC
W F Q Q K P G Q A P V T V I Y S N D K R

300
CCTCGGACATCCCTTCACGATTCTCTGGCTCCGCATCAGGCTCCACAGCTTCCTTGACCA
P S D I P S R F S G S A S G S T A S L T

360
TCACTGGGGCTCAGGCGGAAGATGAGGCTGACTATTACTGTGGGAGCCACGACAGCAATG
I T G A Q A E D E A D Y Y C G S H D S N

421
TTGGTGTATTTGGCGGTGGGACAAAGCTGACCGTCCTAGGTGAGTCTCTTCTCCCTCTAGA
V G V F G G G T K L T V L

Fig. 17A

[HuDD2 VH mini exon]

60
ACGCGTCCACCATGGGATGGAGCTGGATCTTTCTCTTCCTCCTGTCAGGAACTGCTGGCG
M G W S W I F L F L L S G T A G

120
TGCACTCTGAGGTGCAGCTGGTGGAGTCTGGGGGAGGCTTGGTCCAGCCTGGGGGGTCCC
V H S E V Q L V E S G G G L V Q P G G S

180
TGAGACTCTCCTGTGCAGCCTCTGGATTCGACTTTAGTAACTATCAGTTGCAGTGGGTCC
L R L S C A A S G F D F S N Y Q L Q W V

240
GCCAGGCTCCAGGGAAGGGGCTGGAGTGGGTGGGTATTGGCAGCAGTGGCAGTAGCA
R Q A P G K G L E W V G G I G S S G S S

300
CATACTACGGAGCTGCGGTTAAGGGCCGAGCCACCATCTCCAGAGACAACGCCAAGA
T Y Y G A A V K G R A T I S R D N A K N

360
CAGTGTATCTGCAAATGAACAGCCTGAGAGCCGAGGACACGGCTGTGTATTACTGTACCA
S V Y L Q M N S L R A E D T A V Y Y C T

420
GAGGTGTTAGTCCTTACAGCTGTTGGTATGCCGGCCGTACTAGTTATACTTGTCATGCAT
R G V S P Y S C W Y A G R T S Y T C H A

480
ATACTGCTGGTAGCATCGACGCATGGGGCCAGGGAACCCTGGTCACCGTCTCCTCAGGTG
Y T A G S I D A W G Q G T L V T V S S

499
AGTCTGCTGTACTTCTAGA

Fig. 17B

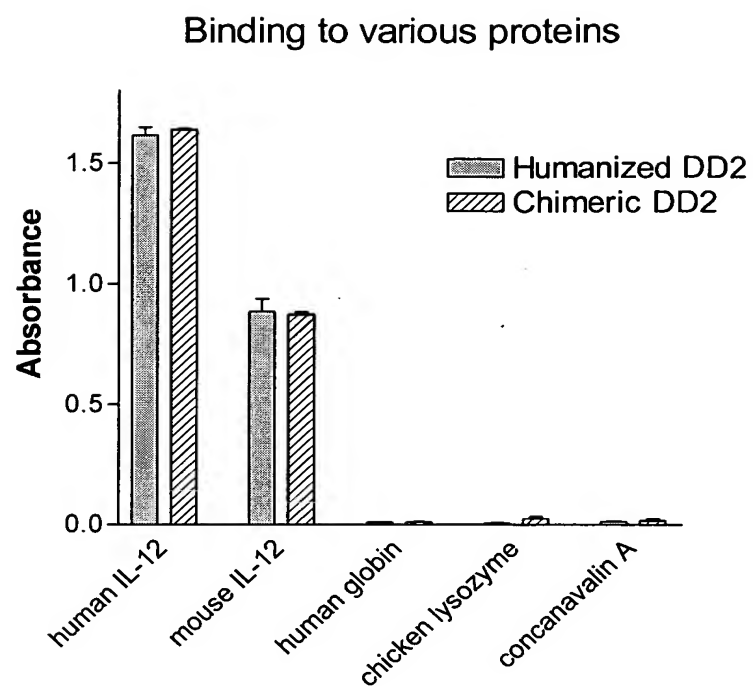
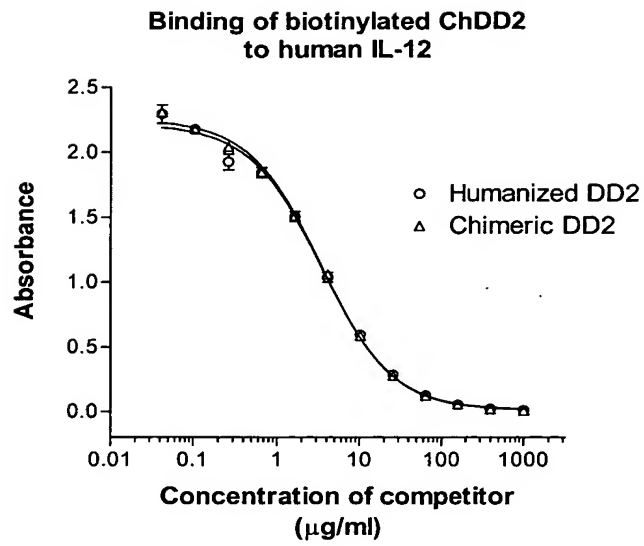


Fig. 18

(A)



(B)

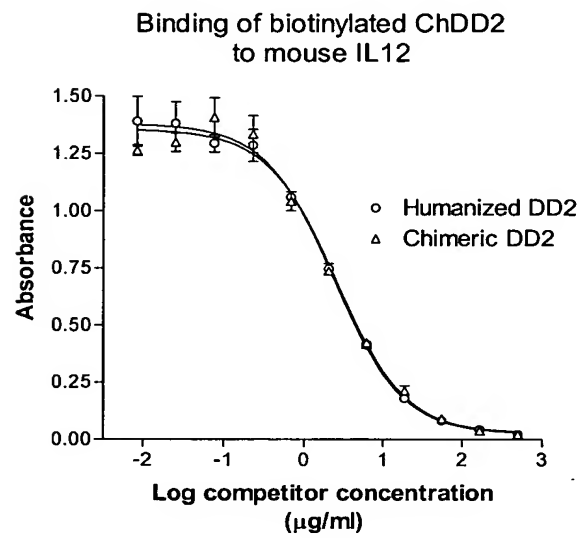
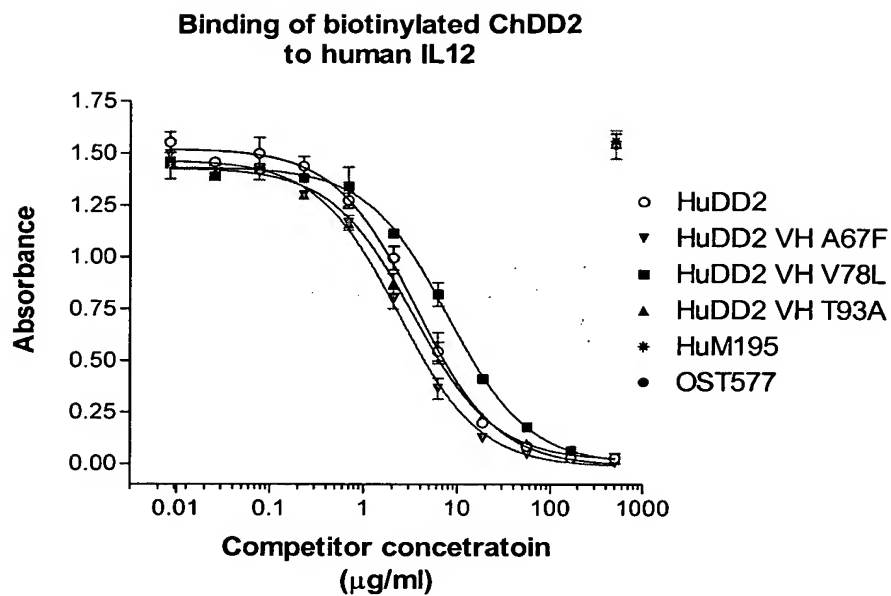


Fig. 19

(A)



(B)

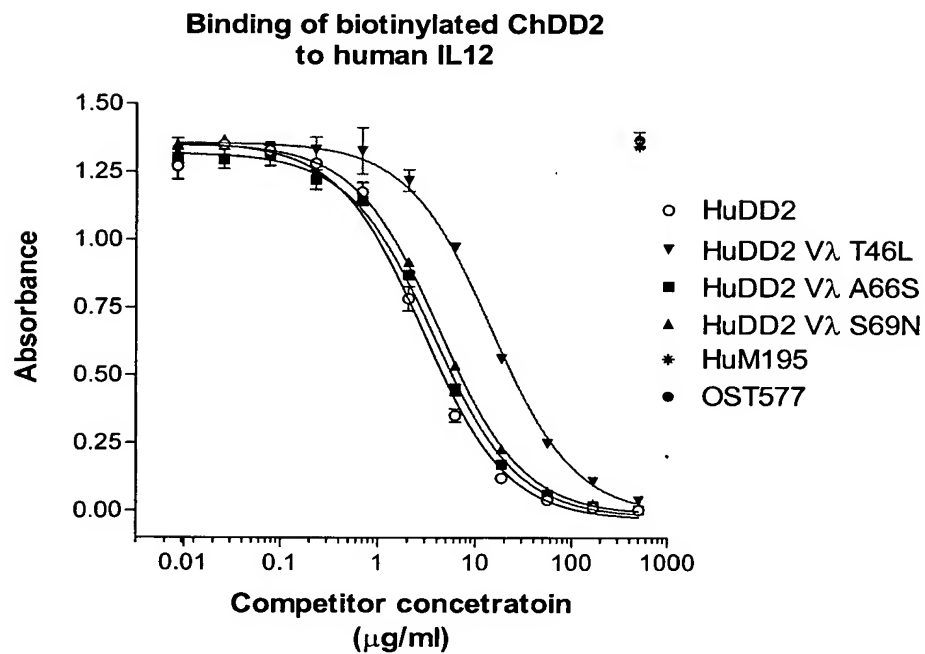


Fig. 20

[D3 Vλ mini-exon]

60
ACGCGTCTCGACCACCATGGAGAAAGACACACTCCTGCTATGGGTCCTACTTCTCTGGGT
M E K D T L L L W V L L L W V

120
TCCAGGTTCCACAGGTGCGCTGACTCAGCCGGCCTCGGTGTCAGCAAACCCAGGAGAAAC
P G S T G A L T Q P A S V S A N P G E T

180
CGTCAAGATCACCTGCTCCGGGGGTAGCTACTATGGCTGGTACCAGCAGAAGTCTCCTGG
V K I T C S G G S Y Y G W Y Q Q K S P G

240
CAGTGCCCCTGTCACTGTGATTTATGACAACGACAAGAGACCCTCGGACATCCCTTCACG
S A P V T V I Y D N D K R P S D I P S R

300
ATTCTCCGGTTCCAAATCCGGCTCCACGGGCACATTAACCATCACTGGGGTCCAAGCCGA
F S G S K S G S T G T L T I T G V Q A E

360
GGATGAGGCTGTCTATTTCTGTGGGAGTGCAGACAGCGCCTATGTTGGTATATTTGGGGC
D E A V Y F C G S A D S A Y V G I F G A

406
CGGGACAACCCTGACCGTCCTAAGTAGAATCCAAAGTCTAGA
G T T L T V L

Fig. 21A

[D3 VH mini-exon]

60
ACGCGTCTCGACCACCATGGGATGGAGCTGGATCTTTCTCTTCCTCCTGTCAGGAAC TGC
M G W S W I F L F L L S G T A

120
TGGCGTCCACTCTGCCGTGACGTTGGACGAGTCCGGGGGCGGCCTCCAGACGCCCCGAGG
G V H S A V T L D E S G G G L Q T P G G

180
AGCGCTCAGCCTCGTCTGCAGGGCCTCCGGGTTCTCTATCGGCAGTTACAACATGCAC T G
A L S L V C R A S G F S I G S Y N M H W

240
GGTGCACAGGCGCCCGCAAGGGGCTGGAGTGGGTCGCTGGTATTAGCGGTGCTGGTAG
V R Q A P G K G L E W V A G I S G A G S

300
TCGCACAGCATGGTACGGGGCGGCGGTGAAGGGCCGTGCCACCATCTCGAGGGACAACGG
R T A W Y G A A V K G R A T I S R D N G

360
GCAGAGCACAGTGAGGCTGCAGCTGAACAACCTCAGGGCCGAGGACACCGGCACCTACTA
Q S T V R L Q L N N L R A E D T G T Y Y

420
CTGCGCCAAAGACTATGGTGGTAGTGGTTCCCCATGGTATGGTTGGGGTGCTGCTAGTTG
C A K D Y G G S G S P W Y G W G A A S W

482
GATCGACGCATGGGGCCACGGGACCGAAGTCATCGTCTCCTCCGGTAAGAATGGCGTCTAGA
I D A W G H G T E V I V S S

Fig. 21B

[Vλ]

	1	2	3	4
	123456789	0123456789	0123456789	0123456789
				A
Chicken D3	**ALTQPAS	*VSANPGETV	KITCSGGS**	**YYGWYQQKS
Humanized D3	SSELTQDPA	*VSVALGQTV	RITCSGGS**	**YYGWYQQK*
3-230IIIB237	SSELTQDPA	*VSVALGQTV	RITC-----	--WYQQK* PGQAPVTVIY
	5	6	7	8
	0123456789	0123456789	0123456789	0123456789
				A
Chicken D3	DNDKRPSDIP	SRFSGSKSGS	TGTLTITGVQ	AEDEAVYFCG
Humanized D3	DNDKRPSDIP	SRFSGSKSGS	TGSLTITGAQ	AEDEADYYCG
3-230IIIB237/Jλ2	-----GIP	DRFSGSSSGN	TASLTITGAQ	AEDEADYYC- -----FG
	1			
	0			
	01234567			
Chicken D3	AGTTLTVL			
Humanized D3	GGTKLTVL			
Jλ2	GGTKLTVL			

[VH]

	1	2	3	4
	123456789	0123456789	0123456789	0123456789
Chicken D3	AVTLDESGG	GLQTPGGALS	LVCRASGFSI	GSYNMH WVRQ
Humanized D3	EVQLLESGG	GLVQPGGSLR	LSCAASGFSI	GSYNMHWVRQ
ha316	EVQLLESGG	GLVQPGGSLR	LSCAASGFTF	S-----WVRQ
	5	6	7	8
	012223456789	0123456789	0123456789	012223456789
	AB			ABC
Chicken D3	GISGAGSRTAWY	GAAVKG RATI	SRDNGQSTVR	LQLNNLRAEDTGT
Humanized D3	GISGAGSRTAWY	GAAVKGRA TI	SRDNAKNTVY	LQMNSLRAEDTAV
ha316	-----	-----RFTI	SRDNSKNTLY	LQMNSLRAEDTAV
	1		1	
	0		1	
	0000000000000123456789	0123		
	ABCDEFGHIJKL			
Chicken D3	GSPWYGWGAASWIDA	WGHGTEV	IVSS	
Humanized D3	GSPWYGWGAASWIDAWGQ	TLV	TVSS	
ha316	-----WGQ	TLV	TVSS	

Fig. 22

[HuD3 V λ mini-exon]

60
ACGCGTCCACCATGGAGAAAGACACACTCCTGCTGTGGGTCCTACTTCTCTGGGTTCCAG
M E K D T L L L W V L L L W V P

120
GTTCCACAGGTTCTTCTGAGCTGACTCAGGACCCTGCTGTGTCTGTGGCCTTGGGACAGA
G S T G S S E L T Q D P A V S V A L G Q

180
CAGTCAGGATCACATGCTCCGGGGGTAGCTACTATGGCTGGTACCAGCAGAAGCCAGGAC
T V R I T C S G G S Y Y G W Y Q Q K P G

240
AGGCCCCTGTAAGTGTCTATGACAACGACAAGAGACCCTCGGACATCCCCTTCACGAT
Q A P V T V I Y D N D K R P S D I P S R

300
TCTCTGGCTCCAAATCAGGCTCCACAGGCTCCTTGACCATCACTGGGGCTCAGGCGGAAG
F S G S K S G S T G S L T I T G A Q A E

360
ATGAGGCTGACTATTACTGTGGGAGTGCAGACAGCGCCTATGTTGGTATATTTGGCGGTG
D E A D Y Y C G S A D S A Y V G I F G G

403
GGACAAAGCTGACCGTCCTAGGTGAGTCTCTTCTCCCTCTAGA
G T K L T V L

Fig. 23A

[HuD3 VH mini-exon]

60
ACGCGTCCACCATGGGATGGAGCTGGATCTTTCTCTTCCTCCTGTCAGGAACTGCTGGCG
M G W S W I F L F L L S G T A G

120
TGCACTCTGAGGTGCAGCTGCTGGAGTCTGGGGGAGGCTTGGTCCAGCCTGGGGGGTCCC
V H S E V Q L L E S G G G L V Q P G G S

180
TGAGACTCTCCTGTGCAGCCTCTGGATTCTCTATCGGCAGTTACAACATGCACTGGGTCC
L R L S C A A S G F S I G S Y N M H W V

240
GCCAGGCTCCAGGGAAGGGGCTGGAGTGGGTGGCTGGTATTAGCGGTGCTGGTAGTCGCA
R Q A P G K G L E W V A G I S G A G S R

300
CAGCATGGTACGGGGCGGCGGTGAAGGGCCGAGCCACCATCTCCAGAGACAACGCCAAGA
T A W Y G A A V K G R A T I S R D N A K

360
ACACAGTGTATCTGCAAATGAACAGCCTGAGAGCCGAGGACACGGCTGTGTATTACTGTG
N T V Y L Q M N S L R A E D T A V Y Y C

420
CCAAAGACTATGGTGGTAGTGGTTCCCCATGGTATGGTTGGGGTGCTGCTAGTTGGATCG
A K D Y G G S G S P W Y G W G A A S W I

481
ACGCATGGGGCCAGGGAACCCTGGTCACCGTCTCCTCAGGTGAGTCTGCTGTACTTCTAGA
D A W G Q G T L V T V S S

Fig. 23B

Binding to L-selectin

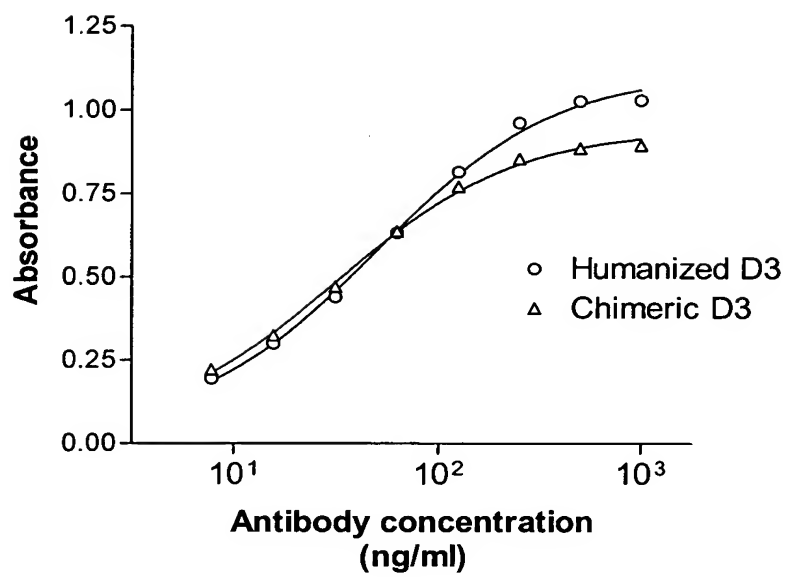


Fig. 24

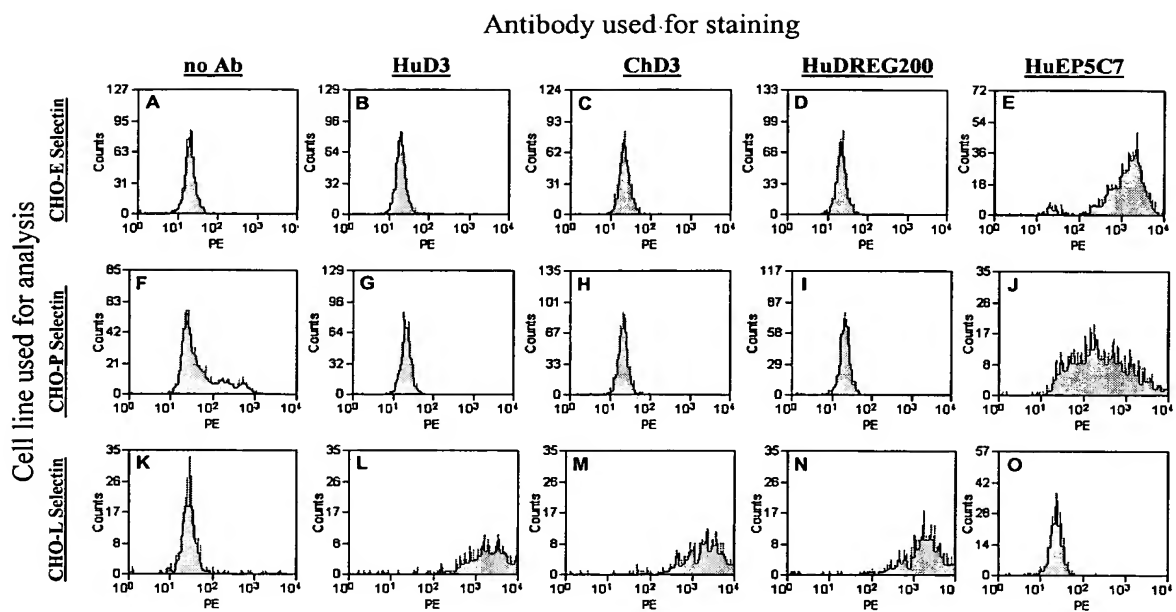
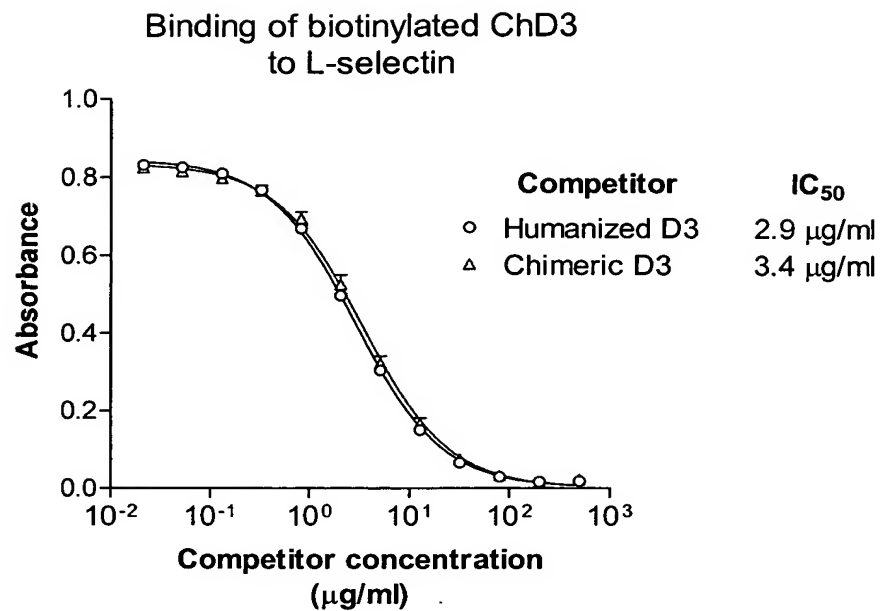


Fig. 25

(A)



(B)

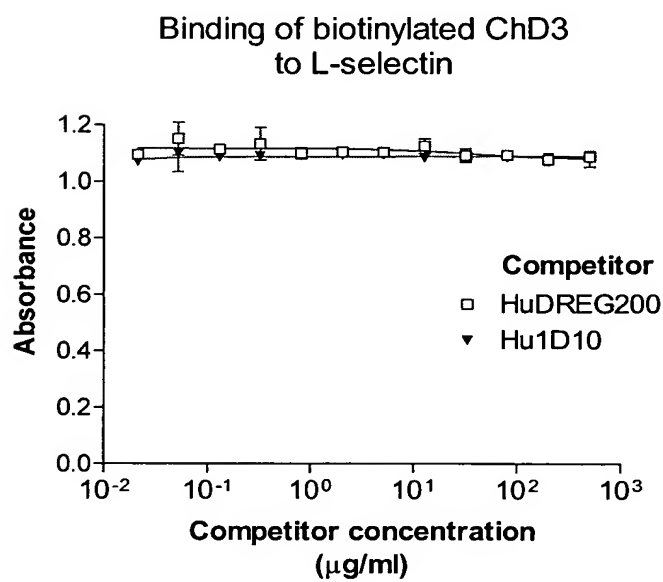


Fig. 26